REMARKS

With this amendment, Applicants add claims 5-7. Claims 1-7 are all the claims pending in the application.

I. Claim Rejections - 35 USC § 101

The Examiner has rejected claims 1-4 under 35 U.S.C. § 101 because the claimed invention is allegedly directed to non-statutory subject matter. The Examiner contends that the claims recite limitations that manipulate an abstract idea or solve a purely mathematical problem without producing a useful, concrete or tangible result as the claims have no specific input or output.

Applicants submit that the modifications to the claims obviate the rejection.

2. Claim Rejections - 35 USC § 103

The Examiner has rejected claims 1-4 under 35 U.S.C. § 103(a) as being unpatentable over Kosaka (EP 0427485 A2) ["Kosaka"]. For at least the following reasons, Applicants traverse the rejection.

Claim 1 recites a method for synthesizing speech that comprises "summing squares of signal levels of an n-th frame in said frequency signal to obtain a frame power correction value for the n-th frame." The Examiner contends the following:

> Kosaka teaches a power normalizing function is added ("summing squares") or subtracted from the original data signal, which reads on "summing squares of signal levels of a frame in said frequency signal to obtain a frame power correction value", at page 6, lines 45-50;

Office Action at page 4.

In response to Applicants' arguments that this section in Kosaka discloses that the "adding" of the normalization function is the actual correction process in order to obtain synthesized speech that is natural and smooth, not the obtaining of a frame correction value for the n-th frame and that the normalization function itself is not based on "summing squares of signal levels of an n-th frame in said frequency signal," the Examiner contends the following:

> The Examiner disagrees and argues the power normalizing function provides support for the power correction value, since determining the power of a signal necessarily requires summing squares of the signal levels and processing the average power for each of N frames is an obvious modification requiring only routine skill in the art.

Office Action at pages 5 and 6.

As best understood, the Examiner is contending that the power normalizing function of Kosaka corresponds to the claimed frame power correction value and that the recitation that the frame power correction is "for the n-th frame" would have been obvious because "processing the average power for each of N frames is an obvious modification requiring only routine skill in the art."

For at least the reasons given below, Applicants disagree that the claimed frame power correction value for the n-th frame is disclosed or rendered obvious by the teachings of Kosaka.

Applicants submit that, although Kosaka modifies the power gap that exists between the interpolation period and the vowel, Kosaka does not correct the overall synthesized sound after the power gap correction. Therefore, the waveform of the synthesized sound of Kosaka is different from the waveform of the original sound. In contrast, the present invention, as set forth in claim 1, makes a correction such that the waveform of the synthesized sound is the same as the waveform of the original sound. The present invention uses the frame power correction

value, as set forth in claim 1, to achieve such correction. An example of the frame power correction value, Gs, is described in the Specification at least at pages 11-12.

In addition, Kosaka discloses that Figs. 4A-4C teach "a method of normalizing a vowel power in a VCV segment." (Page 6, line 35.) Kosaka also discloses that at each end of the VCV data, the respective gaps between the end of the data and the average power of the vowel stored in the adjacent segments are measured. The gaps are labeled Δx and Δy in Figs. 4A and 4B. (See also page 6, lines 39-41.) A power normalization function is then obtained by drawing a line connecting the gaps as shown in Fig. 4B. (See also page 6, lines 42-44.)

Therefore, Applicants submit that the power normalization function is based on the power level at the respective ends of the vowel segments in a phoneme and an average power of the vowel in the respective adjacent segments. The power levels of the vowels away from each end of the phoneme and the power level of the consonant are not considered in the calculations of the power normalization function for the phoneme.

Accordingly, even if, for the sake of argument alone, segmenting the phoneme of Kosaka into a plurality of frames would have been obvious, the frame power correction value for the system in Kosaka would still not be based on "summing squares of signal levels of an n-th frame in said frequency signal to obtain a frame power correction value for the n-th frame," as set forth in claim 1. (emphasis added.)

Further, Applicants submit that the disclosure of Kosaka teaches away from the claimed frame power correction value for at least the reasons given below.

Kosaka discloses that the power normalization function is designed to minimize the correction to the consonant part of the phoneme since the system in Kosoaka is designed not to uniformly expand or compress the entire speech segment. (See Page 3, 28-35, for discussion on purported problems in the related art.) Figs. 4B, 5B, 6 and 7, which illustrate preferred power normalization function curves, clearly show that the power normalization functions are not designed to uniformly effect the entire speech segment. In fact, the consonant is minimally affected by the power normalization curves of 4B and 6 and not affected at all by the power normalization curves of 5B and 7.

Therefore, Applicants submit that modifying the power normalization function of Kosaka to depend on signal levels away from the ends of the vowels or on signal levels of the consonant would not have been obvious. Although using such signal levels may not necessarily produce uniform expansion or compression, the effect of these signals levels on the consonant would be more than the minimal effect required by Kosaka. Accordingly, Applicants submit that Kosaka teaches away from the claimed frame power correction value for the n-th frame.

Moreover, Applicants submit that modifying the system of Kosaka to incorporate a power normalization function that obtains the frame power correction value for an n-th frame by summing squares of signal levels of the n-th frame, as set forth in claim 1, would be a change in the principle of operation of the system in Kosasa since the frame power correction value would also effect the consonant. The MPEP is clear in that "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention

being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." MPEP at 2100-138.

Accordingly, for at least the above reasons, Applicants submit that the Examiner has not made a *prima facie* case of obviousness for claim 1.

Applicant s submit that claims 2-4 are patentable at least by virtue of their dependency on claim 1.

3. New Claims

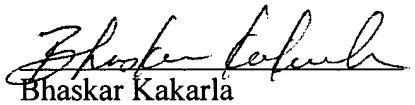
With this amendment, Applicants add claims 5-7. Applicants submit that claims 5-7 are patentable at least by virtue of their dependency on claim 1, as well as the features set forth therein.

4. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: April 17, 2006